# Unit Plan Template

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| **Unit Author** | | | | | | |
| First and Last Name | | | | | Shawne Hass | |
| School District | | | | | MISD | |
| School Name | | | | | Menominee Indian Middle School | |
| School City, State | | | | | Neopit, WI | |
| **Unit Overview** | | | | | | |
| **Unit Title** | | | | | | |
| Fractions—1/2, 1/3, 1/4 | | | | | | |
| **Unit Summary** | | | | | | |
| In this math unit, students will participate and complete a variety of activities to help them identify and understand vocabulary of fractions, use fractions with everyday objects, explore part-whole relationships, and understand important information in fraction word problems. Students represent parts of a whole (1/2, 1/3, 1/4) with various pictures of staff in school and research pictures of favorite objects. Using the Smart Board, students create a digital presentation of pictures of everyday objects representing fractions. Throughout the unit, students participate in cooking activities by choosing a recipe and learn how to follow the recipe by using fractions to create a simple snack or meal. The *Visual Ranking Tool* will be used as a pre-assessment and post-assessment to help students rank the information in various word problems from the most important to the least important. | | | | | | |
| **Subject Area** | | | | | | |
| Mathematics, Language Arts, Technology | | | | | | |
| **Grade Level** | | | | | | |
| Special Education: grades 6-8 for students with cognitive disabilities who have short attention spans, extreme difficulty recalling information, and need repetitive tasks as much as possible to retain information | | | | | | |
| **Approximate Time Needed** | | | | | | |
| 3 weeks (extended time, if needed) | | | | | | |
| **Unit Foundation** | | | | | | |
| **Habits of Learning Taxonomy** | | | | | | |
| Remembering, Understanding, Applying, Analyzing, Evaluate, and Create | | | | | | |
| **Targeted Content Standards and Benchmarks** | | | | | | |
| B.4.4 Identify and represent equivalent fractions for halves, fourths, eighths, tenths, sixteenths  B. 8.3 Generate and explain equivalencies among fractions, decimals, and percents  E.4.3 Create products appropriate to audience and purpose.  ISTE **1. Facilitate and Inspire Student Learning and Creativity**  **a.** promote, support, and model creative and innovative thinking and inventiveness.  **ISTE 2. Design and Develop Digital-Age Learning Experiences and Assessments**  **b.** design or adapt relevant learning experiences that incorporate digital tools and resources to promote student  learning and creativity. | | | | | | |
| **Student Objectives/Learning Outcomes** | | | | | | |
| * Identify 1/2, 1/3, and 1/4 fractions * Locate fractions in a recipe * Demonstrate using fractions with everyday objects with SmartBoard * Illustrate 1/2, 1/3, and 1/4 fractions * Compare rankings in fraction word problems * Rank most important to least important information in a fraction word problem * Make a simple snack or meal | | | | | | |
| **Curriculum-Framing Questions** | | | | | | |
|  | | **Essential Question** | | How do fractions affect our lives? | | |
|  | | **Unit Questions** | | Why are fractions important?  How do we use fractions in our lives? | | |
|  | | **Content Questions** | | What are fractions?  What is a part?  What is a whole?  What is a numerator?  What is a denominator?  What is a difference between a snack and meal? | | |
| **Assessment Plan** | | | | | | |
| **Assessment Timeline** | | | | | | |
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| **Assessment Summary** | | | | | | |
| Students watch a Video created on animoto.com, answer questions about what they saw, brainstorm objects they see at home, school, and community that are examples of fractions, and discuss the objects to gauge readiness and interest in fractions and to promote metacognitive skills as students revisit the objects brainstormed during the unit. Students complete the Fantastic Fractions Sheet with 80% or better to identify 1/2, 1/3, and 1/4 fractions after the first lesson “Introducing Fractions.” Students use the Assessment Checklist (SmartBoard Presentation) to guide them to monitor the quality of their work. The teacher uses it to assess each student presentation. Students illustrate using geometric shapes (circle, triangle, square, and rectangle) 1/2, 1/3, and 1/4 fractions by shading in the each part. The teacher uses it to assess application skills. Before the second to last lesson, students complete the Visual Ranking Tool as a pre-assessment to gauge understanding of fraction word problems. Students discuss results with each other and provide reasons for their ranking. After the last lesson, students complete the Visual Ranking Tool as a post-assessment and compare results to pre-assessment. Teacher uses it to assess student progress. Students reflect upon what they have learned in the unit, returning to the Essential and Unit Questions, “Why are fractions important?” and “How do we use fractions in our lives?”. Students cite 2-4 answers for Essential Question in the Seeing Reason Tool. The teacher uses these reflections to assess student growth throughout the unit. | | | | | | |
| **Visual Ranking Elements** (Complete this section if this tool will be used in the unit) | | | | | | |
| **Visual Ranking Project Name** (For the *Visual Ranking* workspace) | | | | | | |
| Fractions | | | | | | |
| **Project Description** (For the *Visual Ranking* workspace) | | | | | | |
| Sort and rank information needed to solve a fraction story problem. | | | | | | |
| **Prompt** (For the *Visual Ranking* workspace) | | | | | | |
| What do you need to know about fraction story problems? Rank information from most important to irrelevant or least important information in a story problem. | | | | | | |
| **Sorting List** (For the *Visual Ranking* workspace) | | | | | | |
| (Student Name)-- ½ a pizza.  (Another Student Name)-- ½ a pizza.  How much pizza did they eat while they watched the blue cat play with the yarn?  (Student Name)—1/2 pizza.  (Another Student Name)—1/2 pizza.  How much pizza did (Teacher’s Name) eat?  (Two student Names) have 4 cookies.  (Student Name) ate 1 cookie.  What fraction of the cookies was eaten? | | | | | | |
| **Practice Ranking** (For your future quick reference) | | | | | | |
| Teacher ID: | | | | | | Password: |
| Practice Team ID 1: | | | | | | Password: |
| Practice Team ID 2: | | | | | | Password: |
| **Seeing Reason Elements** (Complete this section if this tool will be used in the unit) | | | | | | |
| **Seeing Reason Project Name** (For the *Seeing Reason* workspace) | | | | | | |
| Fractions—1/2, 1/3, and 1/4 Reflection | | | | | | |
| **Project Description** (For the *Seeing Reason* workspace) | | | | | | |
| In getting ready for your reflection, think of activities that you have completed during this unit and how they relate to the the Essential Question (How do fractions affect our lives?). Discuss your answers with 1-2 other students. | | | | | | |
| **Research Question** (For the *Seeing Reason* workspace) | | | | | | |
| How do fractions affect our lives? | | | | | | |
| **Practice Map** (For your future quick reference) | | | | | | |
| Practice Team ID: | | | | | | Password: |
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| **Unit Details** | | | | | | |
| **Prerequisite Skills** | | | | | | |
| Identifying, recognizing, and understanding numbers | | | | | | |
| **Instructional Procedures** | | | | | | |
| **Prior to Instruction**  Show video “Fractions Everywhere” from animoto.com. After video, ask students what they saw in the video and if they ever heard of the word fraction. Brainstorm ways fractions are used in our lives at home, school, and community. Discuss answers and any questions from students. Also, tell students that they will be participating in a cooking class every Friday or last day of the week to practice what they have learned about fractions that week.  **Setting the Stage**  Pose the Essential Question—“How do fractions affect our lives?” Prompt students to think about this question. (Allow up to two days to complete each lesson—students will participate in a cooking class on Fridays or the last day of the week to practice what they have learned about fractions that week).  Begin the unit with Introduction to Fraction lessons.  **(WEEK ONE):**  LESSON 1:  Fantastic Fractions  Obj: Student uses concrete materials to represent fractional parts of whole (one half, one third, one fourth). Materials: -Examples of the fractions 1/2, 1/3, and 1/4 using staff pictures or magazine pictures -Pictures (at least three per group of two to three students) -Scissors (one per child) -Glue (one per group of three students) -Large piece of construction paper for each group (any color) -Provided Fantastic Fractions worksheet page 1 (see attached file) -Markers Preparations: 1. Collect enough staff pictures or magazine pictures so that each group of children will have three pictures.  2. Prepare the examples of fractions from pictures of 1/2, 1/3, and 1/4. See page two of the file attachment for examples.  3. Label the construction paper at the top with 1/2, 1/3, and 1/4 for each group.  4. Run enough of the Fantastic Fractions worksheet so that each child has a copy.   5. Make enough patterns of fractions, or have the geo shapes handy so that each group has one of each fraction. Procedures: 1. Teacher will model lesson. This will set up the activity that the students will be doing. See page two of the attached sheet for examples of fractions using pictures.  2. Show the students pictures of objects that are missing parts. For example, a picture of pizza that you only can see 1/4 of it or a dog that has 1/2 of the dog showing. Have 3 (1/2, 1/3, 1/4) examples of pictures to show these concepts. Hint: Make sure that you have the missing parts outlined so that they can see the original shape of the object.  2. Give each student a copy of the fractions patterns that you have made to help them with the shapes. You may also have them use geometric blocks to trace over the shapes.  3. Put the students in groups of two to three.  4. Hand out pictures to each of the groups.  5. Pass out a large sheet of construction paper (any color) that has been divided into three sections and labeled (1/2, 1/3, and 1/4) to each group.   6. Tell the students that they are to work with their team to find pictures in the magazines or use staff pictures that they can cut out and show examples of 1/2, 1/3, and 1/4.  7. Each group should paste their examples on their construction paper. Make sure that they are putting their examples in the correct location.  8. Students can either cover up the picture with construction paper, or they can black it out with a marker.   9. After each group has finished, have them share their examples with the rest of the class.   10. Let the students try to guess what picture or teacher the students are only showing a fraction of.  11. Pass out one copy of the provided worksheet entitled "Fantastic Fractions" as an assessment to see if the students have mastered (80% mastery) fractions. Assessments: The assessment for this lesson will include the following things: 1. Teacher observation- When the students are working in groups, make sure that they are able to place the fraction pictures in the correct section. Students should have at least two pictures for each fraction on their group's paper.  2. The attached file, Fantastic Fractions, will be used to assess the students' understanding of fractions. Students need to have 80% mastery or more on this sheet. ([Fantastic Fractions assessment sheet and examples of fractions.](http://www.beaconlearningcenter.com/documents/4149_3589.pdf) File Extension: pdf)  LESSON 2:  Introducing Fractions  Obj: Introduce students to fractions through the use of a manipulative.  Materials:  Fraction circles  Procedures:  1. Pass out fraction circles. Students should not start touching these until instructed to do so.  2. Have the students open the circles and put them into groups by their colors. They should have 8 circles on their desks.  3. Students should put their hands on their laps when they are finished. You will know they are finished, because they are still and not messing with their circles anymore.  4. Students should count how many pieces make up each circle. Relate this to fractions. On the board write numerator/denominator. Students should write these two words in their notes. There are two pieces that make up this circle. Two is our denominator because that shows us how many pieces are in each circle. Write the number 2 beside the word denominator. Now, have the students pick up one piece of their two pieces. Ask what they think the numerator would be. One is the numerator. Our fraction is 1/2.  5. Practice naming the numerator and denominator of each set of pieces. Ex. Have the students represent 3/5 with their pieces. Have the students represent 7/8 with their pieces.   6. After students are comfortable with finding given fractions, let students begin comparing fractions. Ex. Is 1/4 bigger than 1/12?  Check for understanding:  Check to see what students are creating with their fraction circles.  **WEEK TWO:**  LESSON 3:  Using Fractions with Everyday Objects  Students will create a digital presentation of pictures of common objects representing fractions.  Specific Objectives:   * Students will identify the numerator from the shaded object(s) in the picture * Students will identify the denominator from the total object's parts in the picture * Students will name the fractional part showed in the picture * Students will select the representation of a given fraction   Required Materials:   * One computer for each group (2-3 students) on SmartBoard * A folder with pictures of different common objects or sets of objects clearly divided in whole, halves, thirds, fourths. * A list of five fractions. * SmartBoard   Anticipatory Set (Lead-In):   * Students will explain the fraction concept and the fraction form by using manipulative objects and sets of objects. * The teacher will give several examples of everyday uses of fractions at home, school and stores. * The students will add examples of fractions in a brainstorming. * The teacher will give some examples of fractions and the students will randomly determine the fraction form.   Procedures:   1. Start SmartBoard 2. Import five pictures per group. 3. Identify numerator and denominator and write it in the title section for each picture in the fraction form. 4. Record the fraction name for each picture mentioning of what object(s) the fractional part is. 5. The teacher will check the fractions and explain to everyone. 6. Save the project and name it "Fractions".   Plan For Independent Practice:   * After the overall understanding on fraction concepts and fraction form, the students how to import and label five pictures, and then how to record voice and add some music using the SmartBoard. * The teacher will provide each team with a detailed procedure sheet, a folder with digital pictures and a list of five fractions.   Closure:   * The teacher will show some pictures on the SmartBoard and some manipulative objects and the students will name the fraction and how they got it. * If there are any mistakes, the teacher will correct them and explain. Students will brainstorm real uses of fractions in everyday life.   Assessment Based On Objectives:  Presentations will be revised. After closure, the students will be required to represent on paper, five fractions with a pictorial model as a way of practice.  **WEEK THREE:**  LESSON 4:  Fractions Represent Parts of a Collection  Obj: Problem Solve using Fraction Word Problems  Materials:   * M&Ms * Counting Chips * Visual Ranking Tool * Seeing Reason Tool   Introduction:  -Give each group (2-3 students) has a bowl of M&M's.  -Have them listen and do the following story problem:  Jeannine grabbed a handful of M&M's and she had 4 green, 2 blue, 3 yellow and 1 red. What fraction of Jeannine's M&M's are yellow? Figure out in groups using the M&M's in front of you. Draw me a picture of what you did and write out your fraction. Question about strategies as they work: What is the numerator? The denominator? How did you come up with your answer? Share strategies with class. Some will probably make the connection between the 10 M&M's and one whole, making the total number of M&M's the denominator and the number of yellow M&M's the numerator. Highlight this idea; if no one suggests it, introduce concept of parts of a collection.   B.          Information Getting Put colored overhead chips on the overhead (matching colors of M&M's). How many M&M's do we have total? Count - 10 M&M's (chips) is the WHOLE group of M&M's. The whole goes on the bottom; it's the denominator. Write out this part of the fraction on the overhead. We're finding out the fraction for how many yellow M&M's we have out of the ten total M&M's - the 3 yellow M&M's (chips) are the part. Circle the three yellow M&M's. The part goes on the top; it's the numerator. Fill in 3 as the numerator. What if we wanted to find the fraction for green M&M's? Let's start again with the denominator - how many total do we have? 10. This is the denominator. How many green M&M's do we have? Count and circle - we have 6. The is the part, the numerator. So 6/10 of the M&M's are green. Let's try another problem. Kelly went to the store and bought a bag of apples - 4 yellow apples and 5 red apples. What fraction of the apples are yellow? Use overhead chips. We first need to find out the total number of apples (9). This is the denominator. Write out this part of the fraction. Count yellow "apples" and circle. This (4) is the numerator. Add 4 to fraction. 4/9 of the apples are yellow. What fraction of the apples are red? Follow same procedure.  C.  Guided practice:  Groups:          Josh went to the store and he bought a bag of apples, too, only his  bag had 3 green apples and 7 red apples. What fraction of the apples are red? Have two sets of pairs draw picture and write fraction on board, discuss. If need more practice, what fraction of the apples are green? Independent practice: Pairs:          Worksheet - Marc grabbed a handful of M&M's. He got 5 blue, 2  yellow, and 1 brown. What fraction of the M&M's are blue? Draw a picture, count up the total (this is the denominator), circle the blue and count (this is the numerator), and write as a fraction. Review: Share pair work. Go over step-by-step process on overhead (use chips if needed).  Summarize by questioning: when I have a group of things, how do I make a fraction? What will the denominator be? The numerator?  D.          Evaluation Use Visual Ranking Tool as a Pre- and Post-Assessment  E. Closure  Have students complete the Seeing Reason Tool above. | | | | | | |
| **Accommodations for Differentiated Instruction** | | | | | | |
|  | **Resource Student** | | Picture directions and other visuals will be provided in order to prevent confusion for students on the autism spectrum and cognitive disabilities. Provide peer tutors when needed. | | | |
|  | **Nonnative English Speaker** | | Enlist the help of bilingual student to translate and interpret concepts. Provide additional templates and graphic organizers. Select peer tutors. | | | |
|  | **Gifted Student** | | Students will determine three fraction equivalencies from the assigned pictures. | | | |
| **Materials and Resources Required For Unit** | | | | | | |

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| **Printed Materials** | Magazines, Pictures of Objects, Recipes |
| **Supplies** | See Above Lessons |
| **Technology -Hardware** | Computer Internet Access, SmartBoard, Camera |
| **Technology -Software** | Animoto.com |
| **Internet Resources** | <http://pblchecklist.4teachers.org/index.shtml>, [Fantastic Fractions assessment sheet and examples of fractions.](http://www.beaconlearningcenter.com/documents/4149_3589.pdf) File Extension: pdf, http://www.lessonplanspage.com/MathIntroducingFractionsWithFractionCircleManipulative35.htm |
| **Other Resources** | Pictures of School Staff, Objects from Home, School, Community (ie. Stores)—when needed. |

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